



NVLAP LAB CODE 200707-0



EN 55022: 2006+A1: 2007 CLASS B  
MEASUREMENT AND TEST REPORT

For

**Xingtel Xiamen Electronics Co., Ltd.**

Xingtel Building, Chuangxin Rd, Torch Hi-tech Ind. District Xiamen 361006, PR China

**Model: XL-2029IDM; TK4060**

<b>Report Type:</b> Original Report	<b>Product Type :</b> Corded Phone
<b>Test Engineer:</b>	Jack Wang
<b>Report Number:</b>	RSZ09111604-1
<b>Report Date:</b>	2009-12-31
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP\*, NIST, or any agency of the Federal Government.

\* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk " \*" (Rev.2)

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## GENERAL INFORMATION

### Product Description for Equipment Under Test (EUT)

The *Xingtel Xiamen Electronics Co., Ltd.*'s product, model number: *XL-2029IDM* or the "EUT" as referred to in this report is a *Corded Phone*, which measures approximately: 18.9 cm L x 16.5 cm W x 8.5 cm H.

Note: The serial product model XL-2029IDM; TK4060, we select XL-2029IDM to test. These two models are electrically and mechanically identical and their difference is only the model name and Trade name, which were explained in the attached declaration letter.

*\* All measurement and test data in this report was gathered from production sample serial number: 0911033 (Assigned by BACL, Shenzhen). The EUT was received on 2009-11-16.*

### Objective

The following test report is prepared on behalf of *Xingtel Xiamen Electronics Co., Ltd.* in accordance with EN 55022, Information technology equipment-Radio disturbance characteristics-Limits and methods of measurement.

### Related Submittal(s)/Grant(s)

No related submittal(s).

### Test Methodology

All measurements contained in this report were conducted with CISPR 16-1-1:2007, specification for radio disturbance and immunity measuring apparatus and methods P1-1: radio disturbance and immunity measuring apparatus. CISPR 16-2-1:2005, specification for radio disturbance and immunity measuring apparatus and methods P2-1: methods of measurement of disturbance and immunity conducted disturbance measurements. CISPR 16-2-3:2006, specification for radio disturbance and immunity measuring apparatus and methods P2-3 methods of measurement of disturbances and immunity radiated disturbance measurements.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 Meters.

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone ShenZhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 21, 2007. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>.

## SYSTEM TEST CONFIGURATION

### Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

### EUT Exercise Software

N/A.

### Special Accessories

The special accessories were supplied by Bay Area Compliance Laboratories Corp. (Shenzhen).

### Equipment Modifications

No modification was made to the unit tested.

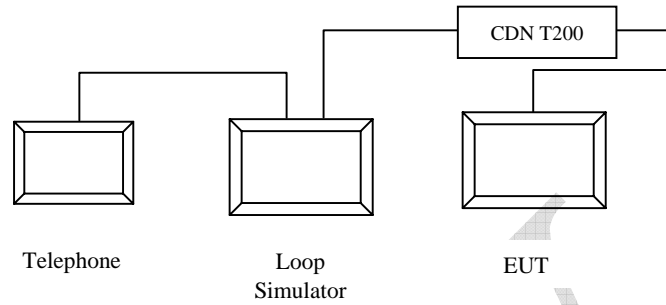
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
Ke Wang	Program-control Telephone Exchange	TC-108H	N/A	N/A
TIANNIAO	Phone	TL2201	N/A	N/A
Com-power	Loop Simulator	LS468	N/A	N/A

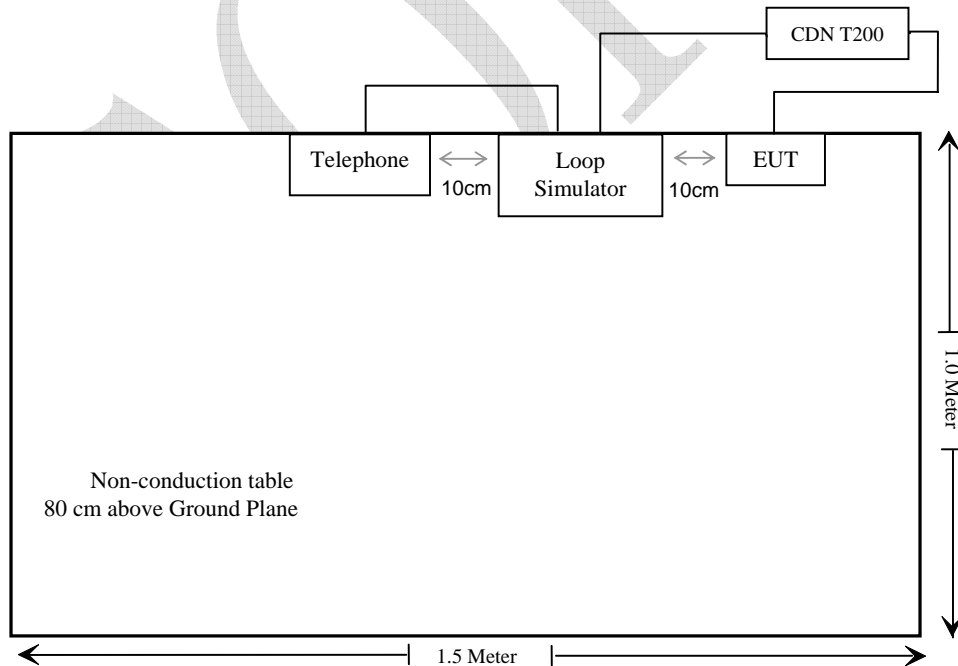
### External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Detachable RJ11 Cable	2.0	EUT	Loop Simulator

## Configuration of Test Setup



## Block Diagram of Test Setup



**SUMMARY OF TEST REPORT****EN 55022**

<b>RULE</b>	<b>DESCRIPTION</b>	<b>RESULTS</b>
§ 5.1	Conducted Disturbance at Mains Terminals	N/A
§ 5.2	Conducted Disturbance at Telecommunication ports	Compliant
§ 6	Radiated Disturbance	Compliant



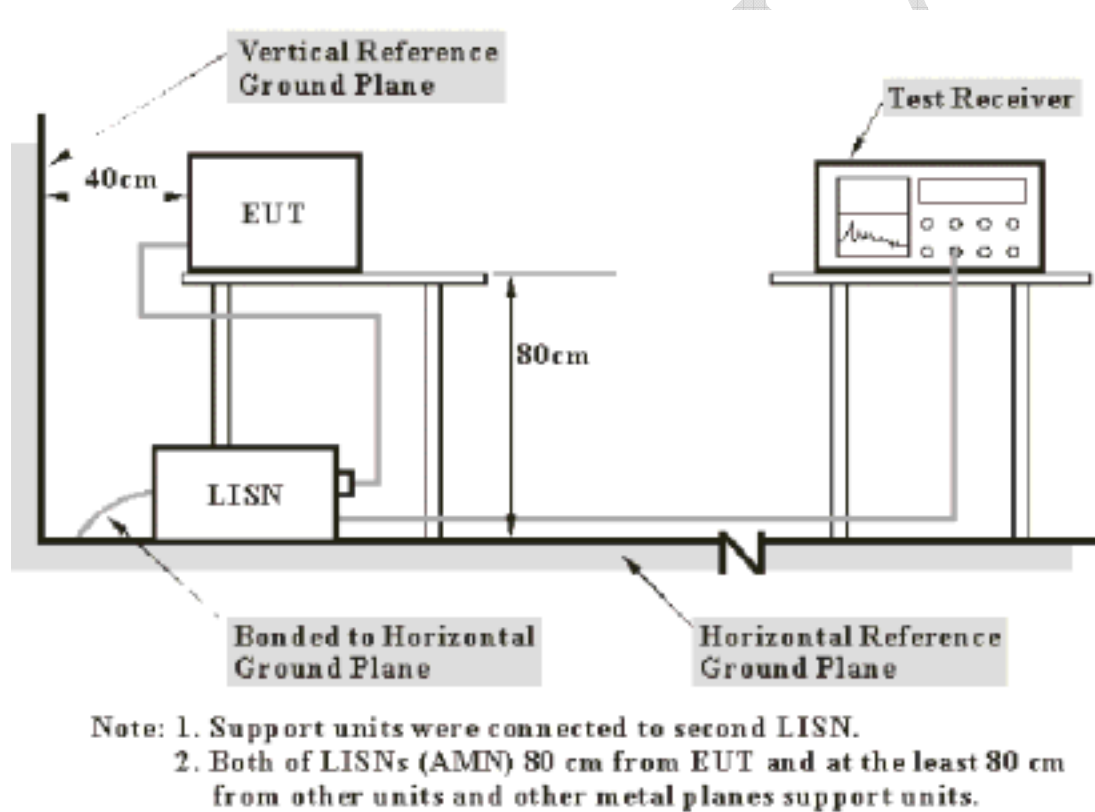
## EN 55022 §5.2-CONDUCTED DISTURBANCE AT TELECOMMUNICATION PORTS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is  $\pm 2.4\text{dB}$ .

### Test System Setup



The setup of EUT is according with CISPR 16-1-1:2007, CISPR 16-2-1: 2005 measurement procedure. The specification used was the EN 55022 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

<i><b>Frequency Range</b></i>	<i><b>IFBW</b></i>
150 kHz – 30 MHz	9 kHz

## Test Equipment List and Details

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2009-04-28	2010-04-27
SCHAFFNER	CDN	CDN T400	16913	2009-10-16	2010-10-16

\* Com-Power's LISN were used as the supporting equipment.

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the Quasi-peak and average detection mode.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the EN 55022 Class B, with the worst margin reading of:

**High current: 38.40 dB at 16.220 MHz in the RJ11 Port conductor mode**

**Middle current: 37.90 dB at 21.860 MHz in the RJ11 Port conductor mode**

**Low current: 37.20 dB at 21.970 MHz in the RJ11 Port conductor mode**

**Test Data****Environmental Conditions**

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	100.0 kPa

*The testing was performed by Jack Wang on 2009-12-27.*

*Test Mode: Talking (High current) (RJ11 Port)*

LINE CONDUCTED EMISSIONS				EN 55022	
Frequency	Amplitude	Detector	Telecommunication Port	Limit	Margin
MHz	dB $\mu$ V	QP/AV	RJ11	dB $\mu$ V	dB
16.220	35.60	QP	RJ11	74.00	38.40
28.630	34.40	QP	RJ11	74.00	39.60
25.455	33.50	QP	RJ11	74.00	40.50
22.240	32.40	QP	RJ11	74.00	41.60
20.045	31.00	QP	RJ11	74.00	43.00
3.630	29.60	QP	RJ11	74.00	44.40
28.635	11.80	AV	RJ11	64.00	52.20
25.230	10.90	AV	RJ11	64.00	53.10
16.220	7.90	AV	RJ11	64.00	56.10
22.140	7.20	AV	RJ11	64.00	56.80
20.045	6.00	AV	RJ11	64.00	58.00
3.690	3.69	AV	RJ11	64.00	60.31

*Test Mode: Talking (Middle current) (RJ11 Port)*

LINE CONDUCTED EMISSIONS				EN 55022	
Frequency	Amplitude	Detector	Telecommunication Port	Limit	Margin
MHz	dB $\mu$ V	QP/AV	RJ11	dB $\mu$ V	dB
21.860	36.10	QP	RJ11	74.00	37.90
20.270	32.60	QP	RJ11	74.00	41.40
25.050	31.90	QP	RJ11	74.00	42.10
28.535	31.50	QP	RJ11	74.00	42.50
8.755	27.40	QP	RJ11	74.00	46.60
15.780	26.60	QP	RJ11	74.00	47.40
28.635	11.30	AV	RJ11	64.00	52.70
15.780	10.70	AV	RJ11	64.00	53.30
26.230	10.70	AV	RJ11	64.00	53.30
22.095	7.40	AV	RJ11	64.00	56.60
20.380	6.20	AV	RJ11	64.00	57.80
8.755	4.30	AV	RJ11	64.00	59.70

*Test Mode: Talking (Low current) (RJ11 Port)*

LINE CONDUCTED EMISSIONS				EN 55022	
Frequency	Amplitude	Detector	Telecommunication Port	Limit	Margin
MHz	dB $\mu$ V	QP/AV	RJ11	dB $\mu$ V	dB
21.970	36.80	QP	RJ11	74.00	37.20
28.410	34.50	QP	RJ11	74.00	39.50
20.310	31.30	QP	RJ11	74.00	42.70
25.510	31.00	QP	RJ11	74.00	43.00
24.080	30.30	QP	RJ11	74.00	43.70
15.475	28.40	QP	RJ11	74.00	45.60
28.195	12.20	AV	RJ11	64.00	51.80
15.555	11.80	AV	RJ11	64.00	52.20
25.230	10.20	AV	RJ11	64.00	53.80
21.970	8.10	AV	RJ11	64.00	55.90
24.005	7.00	AV	RJ11	64.00	57.00
20.310	6.90	AV	RJ11	64.00	57.10

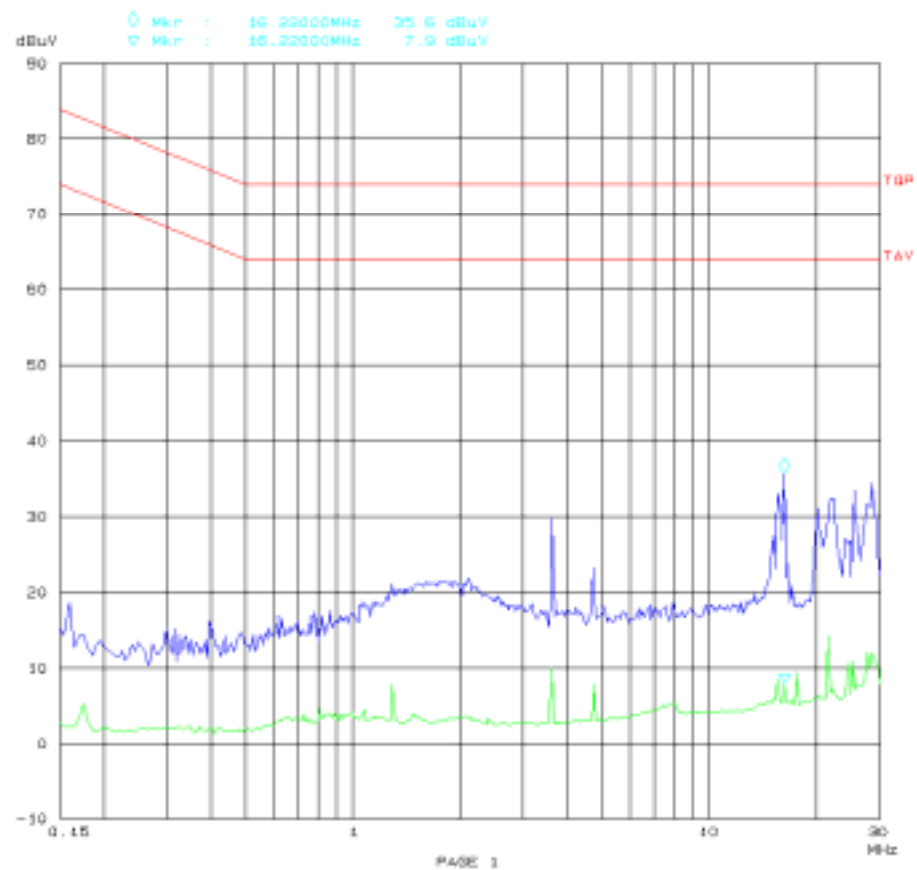
### Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

Conducted Emission  
EN 55022

27. Dec 09 12:29

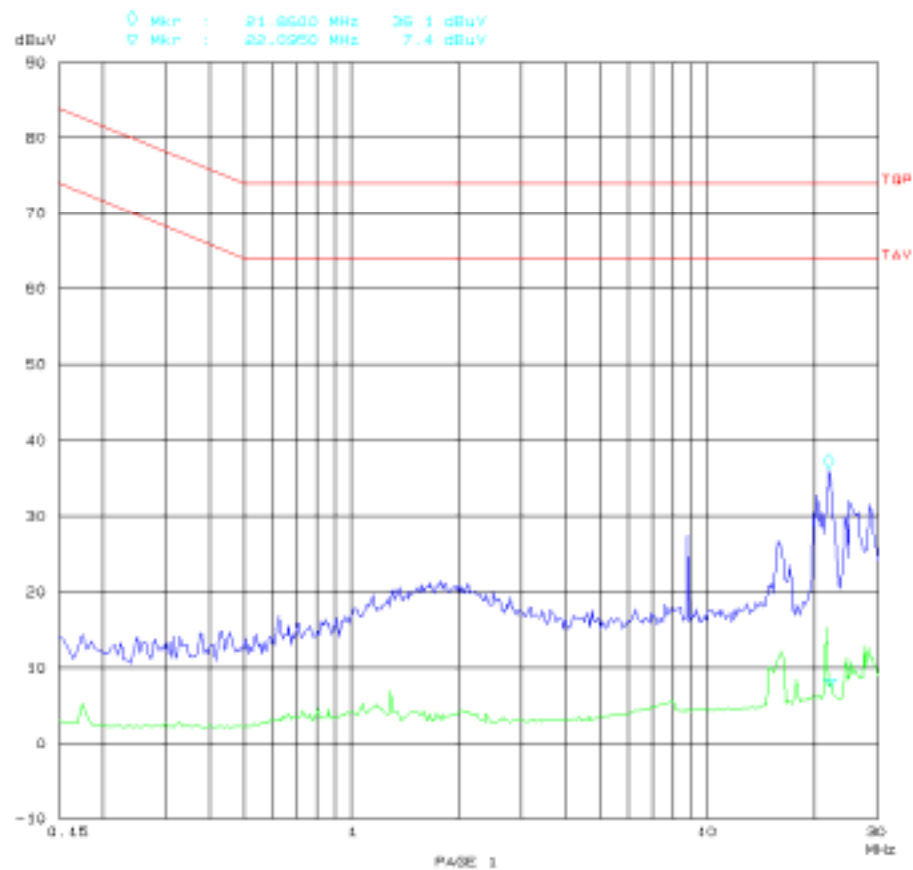
EUT: Corded Phone M/N: XL-2029IDM; TK4060  
Manuf: Xingtel  
Op Cond: Talking (high current)  
Operator: Jack  
Test Spec: RJ11 port  
Comment: Temp: 25 Hum: 66%  
BACL



Conducted Emission  
EN 55022

27. Dec 09 12:36

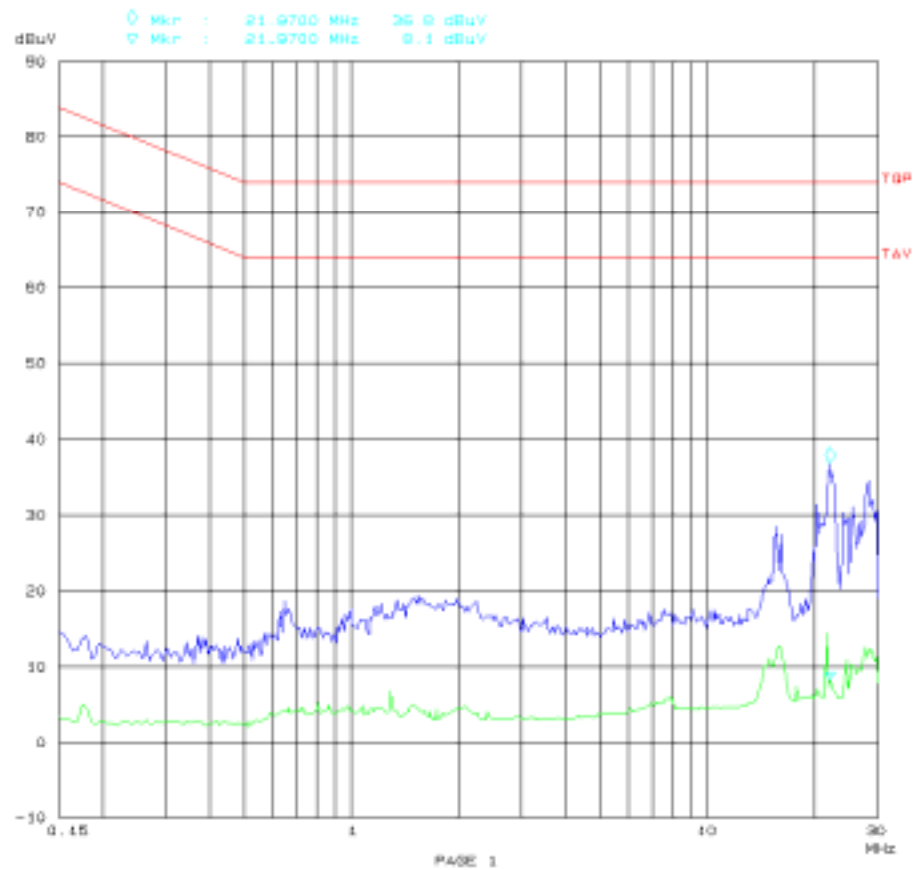
EUT: Corded Phone M/N XL-2029IDM;TK4060  
Manuf: Xingtel  
Op Cond: Talking (Mid.current)  
Operator: Jack  
Test Spec: RJ11 port  
Temp: 25 Hum: 66%  
Comment: BACL



# Conducted Emission EN 55022

27. Dec 09 12:47

EUT: Corded Phone M/N: XL-2029IDM; TK4060  
Manuf: xingtel  
Op Cond: Talking (Low current)  
Operator: Jack  
Test Spec: RJ11 port  
Temp: 25 Hum: 66%  
Comment: BACL



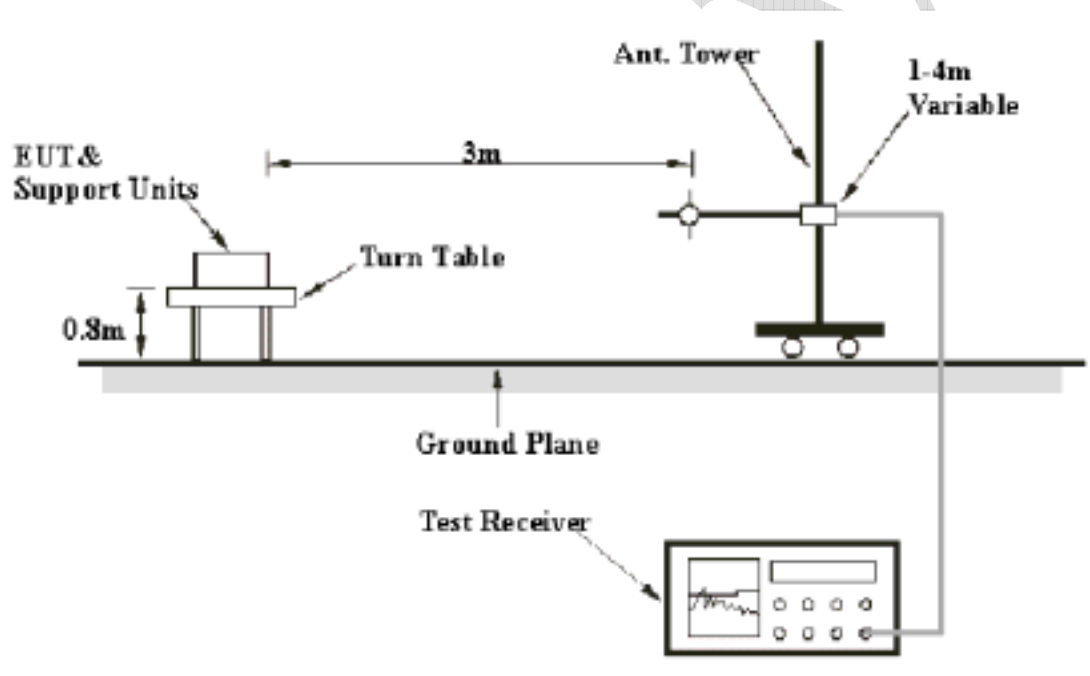
## EN 55022 §6-RADIATED DISTURBANCE

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is  $\pm 4.0$  dB.

### Test System Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the CISPR 16-1-1:2007, CISPR 16-2-3:2006. The specification used was EN 55022 Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



## EMI Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

<i>Frequency</i>	<i>RB/W</i>	<i>VB/W</i>	<i>IF B/W</i>
30 MHz-1 GHz	100 kHz	300 kHz	120 kHz

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2009-11-15	2010-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2009-11-07	2010-11-06
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2009-04-12	2010-04-11

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}.$$

## Test Results Summary

According to the data in the following table, the EUT complied with the EN 55022 Class B, with the worst margin reading of:

**6.5 dB at 34.015500 MHz in the Vertical polarization.**

## Test Data

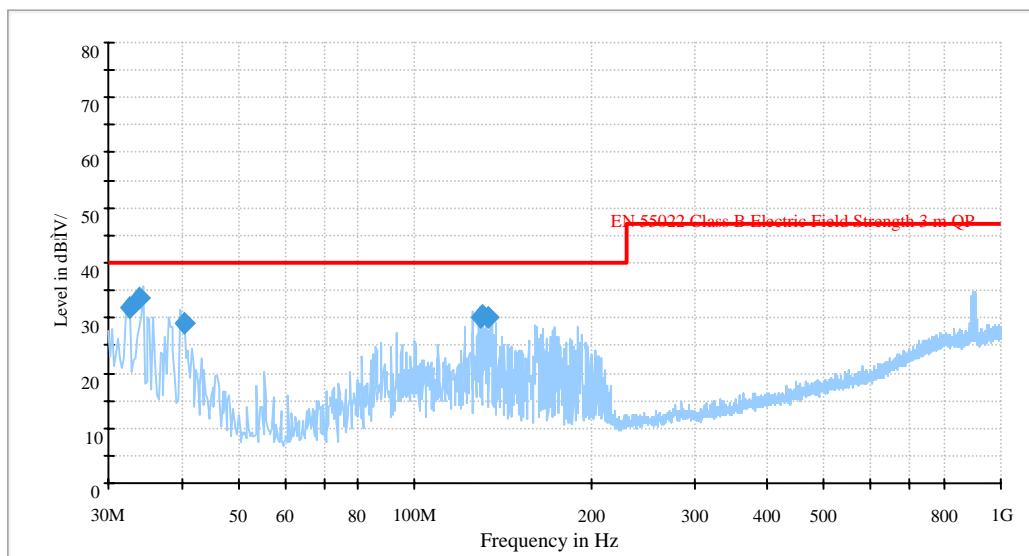
### Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Jack Wang on 2009-12-27.

Test mode: Talking

Auto Test(EN55022 CLASS B)



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Polarity	Turntable Position (deg)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
34.015500	33.5	100.0	V	273.0	-9.1	40.0	6.5
32.667500	31.7	100.0	V	9.0	-15.1	40.0	8.3
130.709500	30.5	100.0	V	8.0	-13.8	40.0	9.5
129.317000	30.0	100.0	V	8.0	-13.7	40.0	10.0
133.637500	30.0	100.0	V	125.0	-14.0	40.0	10.0
40.320500	29.2	111.0	V	8.0	-13.5	40.0	10.8

## EXHIBIT A - PRODUCT LABELING

### Proposed CE Label Format



Specification: Text is Black or white in color and is left justified. Labels are printed in indelible ink on permanent adhesive backing and shall be affixed at a conspicuous location on the EUT or silk-screened onto the EUT.

### Proposed Label Location on EUT

CE Label Location



## **EXHIBIT B - EUT PHOTOGRAPHS**

**EUT – Top View**



**EUT – Bottom View**



### EUT – Cover off Bottom View



### EUT – Main Board Component View

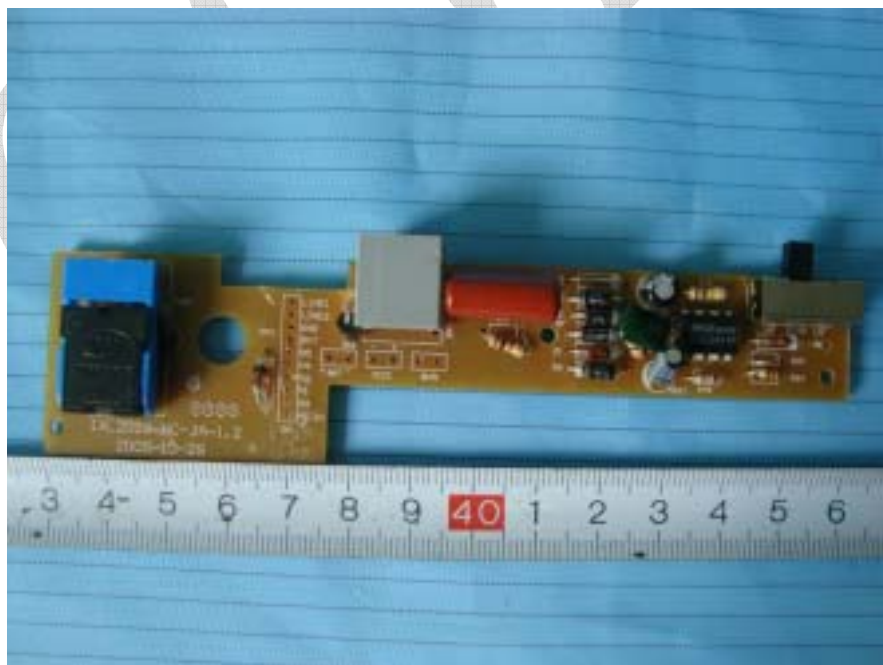




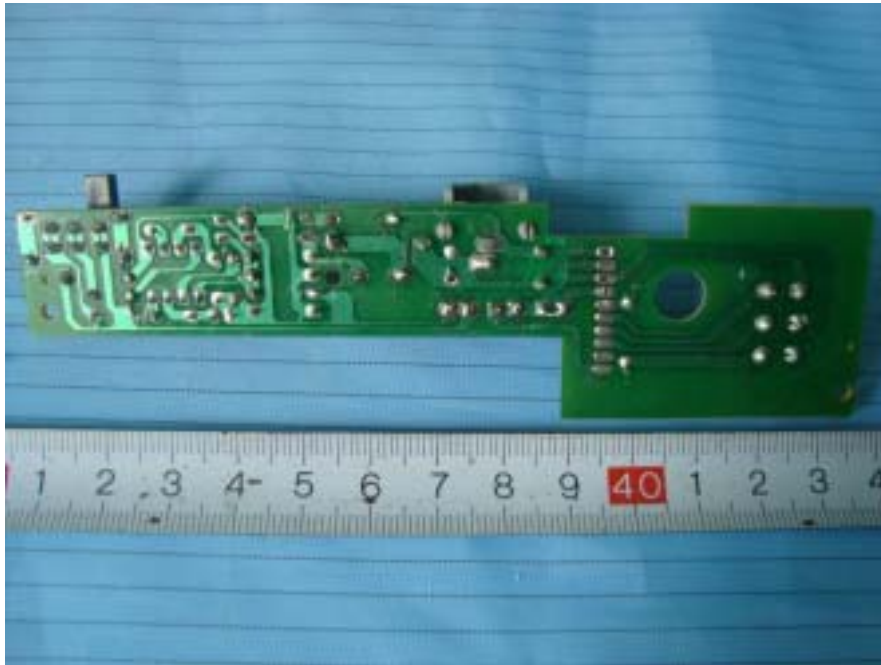
### EUT – Main Board Circuit View



### EUT – Port Board Component View



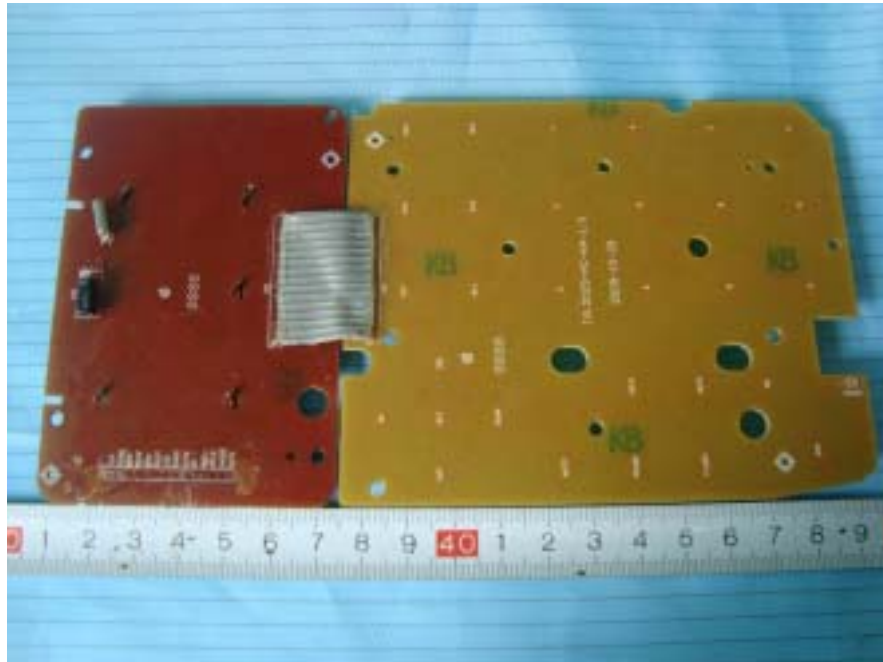
### EUT – Port Board Circuit View



### EUT – Button & Display Board Top View



### EUT – Button & Display Board Bottom View



### EUT – Handset Top View





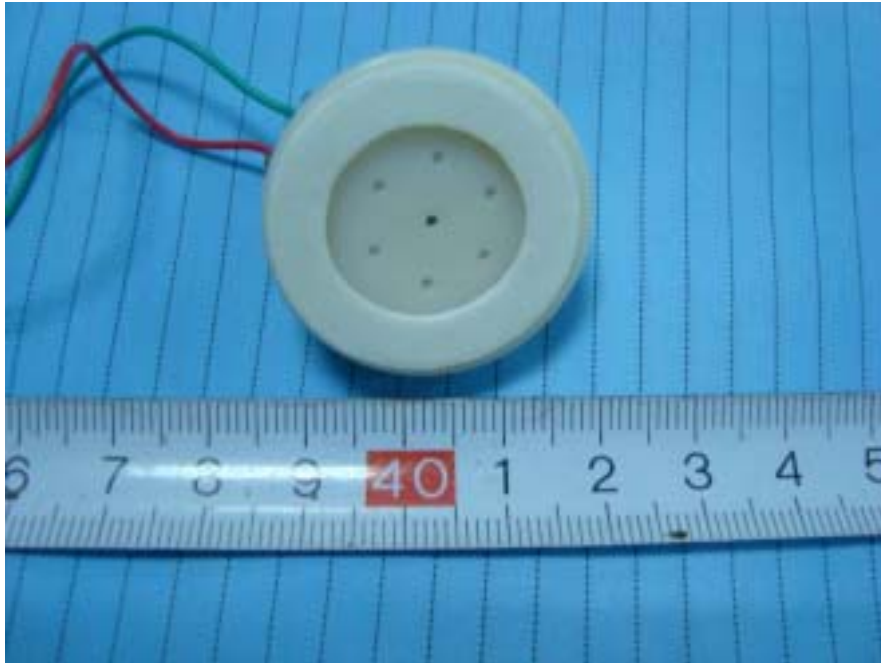
### EUT – Handset Bottom View



### EUT – Handset Cover off View



### EUT – Receiver Top View



### EUT – Receiver Bottom View



## **EXHIBIT C - TEST SETUP PHOTOGRAPHS**

### **Disturbance Voltage at the Telecommunication Ports - Front View (RJ11)**



### **Disturbance Voltage at the Telecommunication Ports - Side View (RJ11)**



### **Radiated Disturbance - Front View**



### **Radiated Disturbance - Rear View**



## DECLARATION LETTER



Created for Litigation  
XINGTEL XIAMEN ELECTRONICS CO., LTD.  
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Fax: +86-592-503-7868

To: Bay Area Compliance Laboratories Corp

### Declaration of Similarity

To whom it may concern,

We,

Xingtel Xiamen Electronics Co., Ltd.

Address: Xingtel Building, Chuangxin Road, Torch Hi-tech Industrial District, Xiamen, 361006, China

Hereby declare that

Product Name: **Corded Phone**

Model No. **TK4060**

belong to **TESAN ILETISIM A.S.** with the trade name is **TTEC PLUS**, it is exactly same with the telephone model no. **XL-2029IDM**, and belong to **Xingtel**. These two models are electrically and mechanically identical, The only difference between them is the model name!

Regards,

Xingtel Xiamen Electronics Co., Ltd.

A handwritten signature in black ink, appearing to read "Simon Ltd", is written over a horizontal line.

Simon Ltd

Director

November 13, 2009

\*\*\*\*End of Report\*\*\*\*